

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of the Claims

1. (Currently amended) A method of regulating quorum sensing in bacteria comprising modulating the ability of LuxR or a homologue of LuxR to activate transcription, wherein quorum sensing is ~~either i) downregulated by treating the bacteria with a peptide hydrolase capable of irreversibly hydrolyzing amide bonds in peptides and proteins or ii) upregulated by treating with a peptide hydrolase inhibitor.~~
2. (Previously presented) A method according to claim 1 wherein said homologue of LuxR is selected from the list consisting of AhlR, AhyR, AsaR, BafR, Bis R, BpsR, BviR, CarR, CepR, CerR, CinR, CsaR, CviR, EagR, EcbR, EchR, EsaR, ExpR, HalR, LasR, M118752, MupR, PcoR, PhzR, PmlR, PpuR, PsmR, PsyR, RaiR, RhiR, RhlR, SdiA, SdiR, SmaR, SolR, SpnR, SprR, SwrR, TraR, TriR, TrlR, TrnR, VanR, VsmR, Y4qH, YenR, YpeR, YpsR, YruR, YtbR and YukR.
3. (Cancelled)
4. (Currently amended) A method according to claim [[3]] 1 or claim 2 wherein said peptide hydrolase is selected from the group consisting of Arg-C proteinase, Asp-N endopeptidase, BNPS Skatole, CNBr, chymotypsin, clostripain, formic acid, glutamyl endopeptidase, iodosobenzoic acid, lysC, NTCB (2-nitro-5-thiocyanobenzoic acid), pepsin, proline-endopeptidase, proteinase K, Staphylococcal peptidase I, thermolysin and trypsin.
5. (Currently amended) A method according to claim [[3]] 1 or claim 2 wherein biofilm formation on a surface is inhibited.

6. (Original) A method according to claim 5 wherein said biofilm is caused by *Pseudomonas*, *Burkholderia*, *Klebsiella*, *Acinetobacter*, *Flavobacterium*, *Enterobacter* or *Aerobacter*.
7. (Original) A method according to claim 5 or claim 6 wherein said surface is wood, glass, concrete, plastic, ceramic, porcelain or metal.
8. (Previously presented) A method according to claim 5 wherein said surface forms part of a denture, a contact lens, an artificial valve, a prosthetic implant, a catheter, a pacemaker or a surgical pin.
9. (Previously presented) A method of disrupting the quorum sensing signal pathway of bacteria comprising administering to the bacteria a composition comprising a peptide hydrolase and an aqueous or a non-aqueous carrier.
10. (Previously presented) The method according to claim 9, wherein the composition further comprises one or more compounds selected from the group consisting of a detergent, a surfactant, a biocide, a fungicide, an antibiotic or a mixture thereof.
11. (Previously presented) The method according to claim 9 or claim 10 wherein the composition further comprises one or more of a pH regulator, a perfume, a dye or a colorant.
12. (Previously presented) The method according to claim 9, wherein said composition is in the form of a spray, a foam, a slurry, a dispensable liquid or is freeze dried.
13. (Withdrawn) A method according to claim 1 or 2 wherein quorum sensing is upregulated by treating the bacteria with a peptide hydrolase inhibitor.
14. (Withdrawn) The method according to claim 13 wherein said peptide hydrolase inhibitor is selected from the group consisting of serine protease inhibitors, including PMSF and Benzamide; cysteine (thiol) protease inhibitors, including PHMB and leupeptin; aspartate

(acidic) protease inhibitors, including pepstatin and DAN; and metalloprotease inhibitors, including EDTA and EGTA.

15. (Withdrawn)(Currently amended) The method according to claim 13 wherein said bacteria is *Bacillus subtilis*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Vibrio salmonicida*, *Aeromonas hydrophila*, ~~*Burkholderia*~~*Burkholderia ambifaria*, *Burkholderia pseudomallei*, *Burkholderia mallei*, *Burkholderia stabilis*, *Burkholderia vietnamiensis*, *Burkholderia multivorans*, *Escherichia coli*, *Serratia marcescens*, *Salmonella typhi*, *Brucella suis*, *Brucella melitensis*, *Yersinia ruckeri*, *Hafnia alvei*, *Shigella flexneri*, *Serratia liquefaciens*, *Enterococcus faecalis*, *Pseudomonas aeruginosa*, *Burkholderia cepacia*, *Pseudomonas fluorescens*, *Providencia stuartii*, *Klebsiella aerogenes*, *Yersinia pestis*, *Yersinia enterocolitica* or *Yersinia pseudotuberculosis*.

16. (Withdrawn) The method according to claim 13 wherein an exogenous gene is inserted into the operon controlled by quorum sensing.

17. (Withdrawn) The method according to claim 16 wherein said exogenous gene is required to be transported to the bacterial cell surface.

18. (Withdrawn) The method according to claim 16 wherein said exogenous gene encodes an antigen.

19. (Withdrawn) The method according to claim 18 wherein said antigen is of bacterial or viral origin.

20. (Withdrawn) A method of upregulating the quorum sensing signal pathway of bacteria comprising administering to the bacteria a composition comprising a peptide hydrolase inhibitor and an aqueous or a non-aqueous carrier.